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SCIENCE NEWS LETTER

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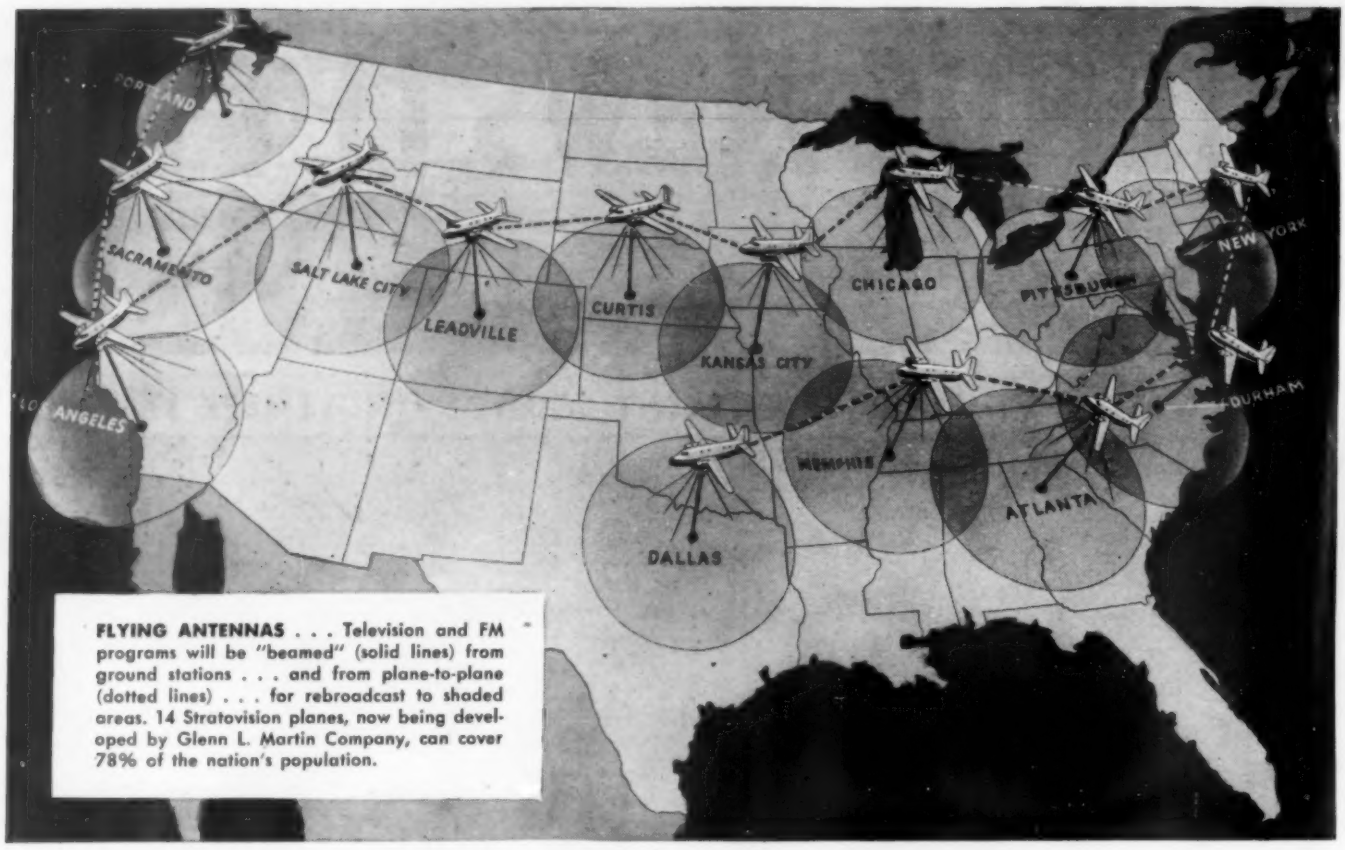
THE WEEKLY SUMMARY OF CURRENT SCIENCE • NOVEMBER 17, 1945

Unusual Infant

See Page 313

A SCIENCE SERVICE PUBLICATION



FLYING ANTENNAS . . . Television and FM programs will be "beamed" (solid lines) from ground stations . . . and from plane-to-plane (dotted lines) . . . for rebroadcast to shaded areas. 14 Stratovision planes, now being developed by Glenn L. Martin Company, can cover 78% of the nation's population.

How Westinghouse STRATOVISION took the final headache out of Television and FM

EVEN before the war ended, Television and FM transmitting and receiving equipment had reached a high degree of perfection. But a final difficulty remained—the problem of broadcasting such programs on a *nationwide basis.*

Because of the ultra-high frequencies employed, Television and FM waves travel only in straight, "line-of-sight" direction. They do not *bend* around the earth's surface . . . as do those of standard-band radio.

This limits the range of a Television or FM station to a *maximum of 50 miles*—even when perched atop the tallest building.

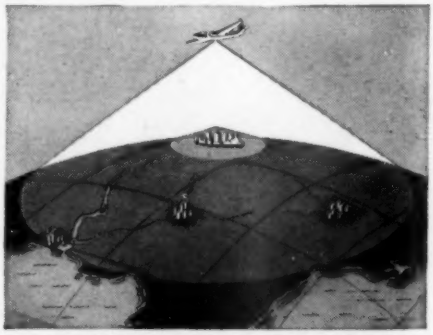
A chain of radio-relay stations across the country—or coaxial cables spanning the nation—have been proposed as a solution. But these are terrifically expensive and, worse yet, cause serious distortion of long distance programs.

Now, at last, Westinghouse research engineers have discovered a practical solution—"STRATOVISION"—broadcasting Television and FM programs from *planes flying six miles high in the stratosphere!*

At this altitude, a single Stratovision plane can cover an area 422 miles in diameter . . . 103,000 square miles . . . approximately the combined area of New York, New Jersey and Pennsylvania.

Westinghouse engineers predict that 14 of these flying broadcasting stations can transmit 4 Television and 5 FM programs simultaneously to *78% of the nation's population.*

The conception and planning of Stratovision broadcasting are a tribute to the ingenuity and engineering "know-how" of Westinghouse radio technicians . . . gained through producing approximately $400,000,000 worth of Radar and radio equipment for our armed forces.



HERE'S THE SECRET . . . Stratovision broadcasting, serving an area of 103,000 square miles, will require only *1/50th as much* power as a 50 kilowatt ground transmitter covering only 7,900 square miles. That's why a *single Stratovision plane* can easily carry and power the equipment needed for simultaneously transmitting 4 Television and 5 FM programs.

Westinghouse

PLANTS IN 25 CITIES OFFICES EVERYWHERE

Tune in: JOHN CHARLES THOMAS—Sunday, 2:30 pm, EST, NBC.
TED MALONE—Monday through Friday, 11:45 am, EST, American Network

GENERAL SCIENCE

Intellectual Freedom

This should be guaranteed but no attempt made to solve problem of military information security, London conference proposes.

By VICTOR COFMAN
Cabled from London

➤ INTELLECTUAL freedom would be guaranteed but no attempt would be made to solve the problems related to security of military information, if proposals made by Archibald MacLeish, chairman of the U. S. delegation to the United Nations conference for the establishment of world educational and cultural organizations are adopted.

This suggestion has relationship to the problems raised by the atomic bomb development and the restrictions for military reasons placed upon the announcement of results of scientific research.

Mr. MacLeish's idea seems to be that the international organization would first tackle the job of free speech and free press in the broad cultural field rather than try to solve a complex situation that is a special part of the larger problem.

British scientists are insisting that the word scientific be inserted in the title of the proposed organization and this viewpoint was presented and supported by Britain's Minister of Education Helen Wilkinson. This viewpoint is understood to have insistent support among American scientists also.

Scientists among the 300 delegates from 43 nations include: Nobelist J. F. Joliot and Dr. Pierre Auger, physicists of France; Dr. Charles Armstrong, British chemist; Dr. H. R. Kruyt, Dutch chemist; Dr. Olaf Devik, Norwegian physicist, and Dr. Ellen Gladitsch, Norwegian chemist. Dr. Harlow Shapley, Harvard astronomer, the scientist upon the American delegation, joined the conference about Nov. 10.

Interim Commission

➤ THE formation of an interim educational, scientific and cultural commission, consisting of the representatives of 15 governments, to bridge over the gap until a United Nations Educational, Scientific and Cultural Organization is fully established has been suggested by the United States delegation to the organization meeting of the UNESCO here.

Another interim commission to examine the problem of controlling atomic research was proposed by the Belgian representatives. Prof. G. Magnel, civil engineer from the University of Ghent, told me that the Belgian proposal would involve the inspection of all nuclear research laboratories by an inspection service to be set up by each government, which would then report its findings yearly to UNESCO.

Two Alternates

➤ LIVING deep underground or the complete dispersal of our population into small, widely separated villages is the only alternative to the immediate abolition of secret diplomacy and the control of atomic bomb manufacture under international authority. This is the opinion of Prof. Marcus Laurence Oliphant, British physicist who participated in the making of the atomic bomb.

Any secrets in the manufacture of the atomic bomb cannot be kept more than six months, Prof. Oliphant warned.

No scientific knowledge should or can be kept secret, resolutions of the conference of the World Unity Movement and the Council for World Airways recited after the meeting had heard from three members of the Royal Society, Sir Leonard Hill, Prof. Launcelot Hogben and Dr. Kathleen Lonsdale.

Development of atomic energy without delay and subject to international control was recommended, and the cooperation of scientists was advised to devise the best means to exploit its use under a world authority solely and fully in the interests of the world community.

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PHYSICS

Betatron X-Ray Machine Ready for Industrial Uses

➤ PUSH-BUTTON controlled betatron machines, that generate 20,000,000 volt X-rays, are ready for industrial use, Gail D. Adams, Jr., of the University of Illinois physics department, told the Marquette University's radiography symposium in Milwaukee.

GETS NEW POST—Dr. Edward U. Condon, one of the country's atomic bomb experts, is now the new director of the Commerce Department's Bureau of Standards. He succeeds Dr. Lyman Briggs, retiring director. Photograph by Fremont Davis, Science Service staff photographer.

Perfected in secret during the war, the betatron was invented by Prof. Donald W. Kerst of the University of Illinois and now a commercial model has been made for industry and medicine.

The 20,000,000 volt machine makes X-ray pictures through 20 inches of steel in 1½ hours, shows up flaws as small as 1/32 inch, produces images enlarged to three times size, and produces sharply defined photographs because of the pin-point source of the X-rays.

The commercial model is arranged for simple, inexpert operation and takes a space only five feet long, three feet high and two feet thick.

The betatron operates by accelerating electrons, the light-weight satellite particles of an atom, to a speed approaching the speed of light.

Electrons are injected into the doughnut-shaped vacuum tube and are speeded by the rising phase of an alternating current in the magnet.

They spin around inside the tube, gaining 70 volts energy at each of 300,000 revolutions, are deflected from their orbit to strike the pin-point target which gives off 20,000,000 volt X-rays.

The concentrated beam from this point has been calculated to equal the radiation from at least 5,000 grams of radium.

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ASTRONOMY

Rings Around Double Stars

Discovery of gaseous rings surrounding some suns may bring us closer to solving the riddle of how multiple stars and dark planets are created.

By DR. OTTO STRUVE

Director, Yerkes and McDonald Observatories

➤ MANY double stars, those enormous suns that whirl around each other at incredible speeds, are surrounded by rings of flaming gases. Discovery within the past few weeks of several new double stars of this type may bring us closer to solving the riddle of how multiple stars and dark planets are created. One or both of the rotating suns in double stars such as AQ Pegasi, in the constellation of Pegasus, the Winged Horse, and VW Cygni, in the constellation of the Swan, are encircled by tenuous rings of fiery gases. Half-a-dozen such stars have recently been found by observers at the McDonald Observatory of the University of Texas, operated jointly by the Universities of Texas, Chicago and Indiana.

In all the twin stars with rings thus far observed, the flaming rings of gases have been found to rotate very rapidly in the direction in which the two suns themselves revolve. Since the component stars at present do not rotate exceptionally rapidly around their axes, it seems probable that the rings, which move much more rapidly, were formed early in the history of each system.

These rings, which might be compared to the rings surrounding the planet Saturn, were probably created when the rotation of the star was great enough to make the system unstable. They possibly came into being at the time the star split to form a two-star system.

Usually the thin rings, with diameters two or three times the diameters of the stars themselves, are located midway between the two poles, in the equatorial plane of the rotating star. In most cases the presence of these rings, far too small to be seen even with the largest telescope, is detected by bright radiations of hydrogen and sometimes of other gases found in the star's spectrum.

Once in a while we find a star whose equator happens to lie exactly in the line of our sight so we get an edge-on view of the ring. In such a case we observe the light of the star shining through the gases composing the ring. This makes it possible to learn some of the secrets of these Saturn-like stars by examining the dark lines which appear in the spectrum.

Thinking of the rings of Saturn may make clearer the way we study these stars. When the rings are open, they are seen projected mostly upon the background of the sky. If the rings were gaseous (which the rings of Saturn are not) they would then give bright lines in the spectrum. But sometimes the rings of Saturn are seen edgewise, and are then mostly projected upon the disk of the planet. In such a position a ring of gas would produce in the spectrum dark lines in the position characteristic of the bright lines belonging to the gas.

Some of the close binary systems consist of two suns revolving around one another, almost in contact, taking from a few hours to many days to complete one rotation. Frequently these double stars are surrounded by tenuous rings, while sometimes only one of the two revolving suns has a ring around it.

When the ring surrounds only one sun in a binary system, we have a good opportunity to test our theory concerning these gaseous rings. Once in every revolution the star in front eclipses the star behind it. But just before the more distant star is hidden, the star in front passes over one side of the ring and eclipses it. Immediately after the eclipse it covers up the other side of the ring. When one or the other side of the ring is eclipsed, the violet and red components of the bright lines of hydrogen disappear from the spectrum.

The use of the spectograph in detecting the presence of rings was suggested by the late Dr. Arthur B. Wyse of the Lick Observatory and was then correctly interpreted by Dr. Alfred H. Joy of the Mount Wilson Observatory.

In the course of some ten years we have observed the appearance of new rings around single, rapidly-rotating stars, and have also seen the rings gradually disappear. They seem to be quite unstable and rapidly dissolve into space.

It seems probable that these rings, only rarely present in single stars, are frequently present in two-star systems. Even when we do not see them, they are almost certainly present because in most of the systems the angle at which we see the rings is not suitable for producing and observing the bright lines in the spectrum.

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A *fuel* somewhere between kerosene and gasoline has been developed for jet-propelled planes.

The *coco palm* provides food, drink, clothing and shelter; from the coconut shell, combs, spoons, bowls and ornaments are made.

SCIENCE NEWS LETTER
Vol. 48 NOVEMBER 17, 1945 *No. 20*

The weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St. N. W., Washington 6, D. C. NOrth 2255. Edited by WATSON DAVIS.

Subscriptions—$5.00 a year; two years, $8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents. Monthly Overseas Edition: By first class mail to members of the U. S. Armed forces, $1.25 a year. To others outside continental U. S. and Canada by first class mail where letter postage is 3 cents, $1.25; where letter postage is 5 cents $1.50; by airmail, $1.00 plus 12 times the half-ounce airmail rates from U. S. to destination.

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Entered as second class matter at the post office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566 and 360 N. Michigan Ave., Chicago, STAte 4439.

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MEDICINE

Chemical War on Allergy

Ethylene disulphonate injected into hayfever, asthma, migraine and other allergic sufferers relieved most or all of the symptoms.

➤ GOOD results with a chemical attack on hayfever, asthma, migraine and other allergic conditions were reported by Dr. W. Merritt Ketcham, of Kansas City, Mo., at the meeting in Cincinnati of the Southern Medical Association.

After one to six injections of the chemical, ethylene disulphonate, patients were relieved of most or all of their symptoms and have remained well for the six to 18 months since the treatment was given.

The idea for this chemical attack on hayfever and kindred ailments was developed by a group of British and Belgian scientists. They believed from their studies that the primary cause of allergy was a "department from normal in the chemistry of cellular metabolism involving the absence of certain catalysts of co-enzyme activity."

Shock, either emotional or as a result of infection or injury, would cause the abnormality in cell chemistry in persons whose body cells had inherited a tendency to react in such a way to the shock.

Giving the allergic patient a catalyst chemical which would restore the "normal oxidation chain involved in the production and normal distribution of cell energy" would be the suitable treatment, the scientists reasoned. They suggested that the missing catalyst would be a short carbon chain compound having two or more unsaturated carbon linkages. A number of such chemicals were produced, of which the most satisfactory seems to be ethylene disulphonate. It is not believed that this is the catalyst missing from the body in allergy but it helps the patients as if it were.

Dr. Ketcham has used it in some 200 cases during the past three years. One woman suffered from migraine for 18 years. During the past 18 months she was in bed two and three days of each week, losing five and six pounds during the 48 to 72 hours of headache. After six injections of diethylene sulphonate between April and October, she has been free of headache for a year except for one soon after the last injection, has gained 17 pounds and feels better than in years past.

Patients with year-round hayfever seldom get 100% relief, but most of them report 50 to 75% improvement. Dr. Ketcham believes, from results with those first treated, that in another year or two the improvement in these patients will be more marked.

Those with food allergy are able to eat almost anything without trouble and all are in better health. Asthma patients are relieved of their symptoms, gain weight and are able to get over a cold or sinus infection without having an attack of asthma.

Some patients may in future have relapses and it is always possible, Dr. Ketcham pointed out, that conditions which started the allergy may occur again and reestablish an allergic state.

Besides his own experience with ethylene disulphonate, Dr. Ketcham referred to reports of other physicians who have treated many hundreds of patients with the same satisfactory results.

Ethylene disulphonate is made by the Spicer-Gerhart Company in Pasadena, Calif., but is available only to physicians for clinical research.

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PHYSICS

Smyth Report Reprinted By British Publisher

➤ THE SMYTH report on atomic energy, which is the authorized detailed story of the development that led to the atomic bomb, has been reprinted in a 10,000-edition by His Majesty's Stationery Office, the official British government agency corresponding to the U. S. Government Printing Office which prints U. S. official publications.

About ten such U. S. documents have been reprinted similarly, including the official radar report. The American Library in London, which is a function of the Department of State, acts as professional adviser to the HMSO in this connection.

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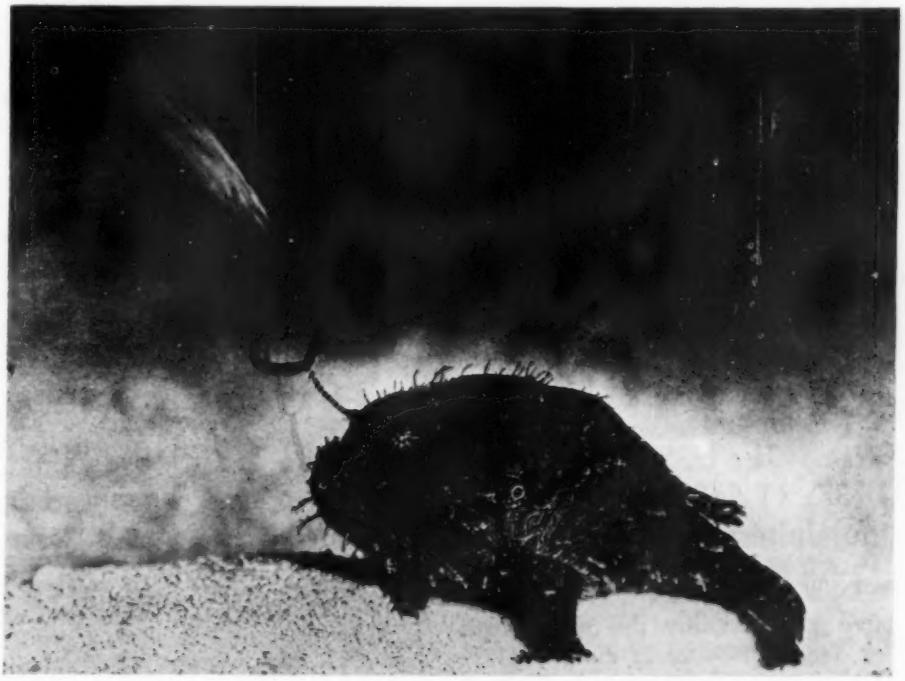

GOES MAN ONE BETTER—The frogfish is never without his rod and worm-like "bait." The lure is a perfect imitation of a wriggling grayish-white worm, points out Dr. William Beebe of the New York Zoological Park. When the prey is about two inches away, the great mouth of the angler opens, creating an irresistible current. Having swallowed his prey, he lays the lure back on his head, ready for use when he is hungry again, and spreads all his fins, Dr. E. W. Gudger of the American Museum of Natural History reports.

ASTRONOMY-METEOROLOGY

"Controls" the Weather

Changes in the sun's radiation may affect the earth's weather indirectly through variations in the thickness of "E" layer in outer atmosphere.

➤ WEATHER changes on earth may be indirectly controlled by changes in the sun's radiation, through variations in the thickness of the radio-wave-reflecting "E" layer of the earth's outer atmosphere. A close correlation between thickness changes in this layer and shifts in the weather has been found by Dr. Charles G. Abbot, research associate of the Smithsonian Institution, in a study of records extending over seven years.

Dr. Abbot has for many years followed the apparent connection between the weather and the solar constant, or total radiant energy received from the sun, as recorded daily at Smithsonian observatories in California, New Mexico and Chile. Changes in the solar constant are small and difficult to make at best—impossible under bad weather conditions. "E" layer thickness variations, on the other hand, are easier to measure and observations are not affected by weather. These thickness variations are also measured daily, by observers of the Carnegie Institution of Washington; the best records are those kept by the Carnegie stations at Huancayo, Peru, and Watheroo, Australia.

"It is clear," states Dr. Abbot, "that the sun's variations are a major factor in weather. The effects produced are large. In Washington temperatures it makes nearly 20 degrees Fahrenheit of difference in some months whether the solar constant rose or fell by three-fourths of one percent a week or more previously. The effects are long continuing. They appear to begin three days before measurable changes in radiation occur, and to last at least until 14 days after, making an important sequence of at least 17 days in weather, attending each change of solar radiation.

"It appears that approximate predictions a week in advance could be made of dates of peaks and troughs of Washington temperature if daily reports of the 'E' layer were obtained from a sufficient number of ionization stations, and if means could be found to anticipate by a few days closely the date of the next approaching solar change. Its sign would always be known to be opposite to that last observed. From present records we should expect solar changes of the same sign to follow each other at intervals of about nine days, with changes of opposite sign intervening. There is, I think, a fair hope that such important dates as heavy frosts may become predictable a week in advance from solar observations by this method."

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GENERAL SCIENCE

Many Russian Scientists

The USSR has trained 3,900 for doctor's degree since 1937; 11,543 doctor's degrees in science were granted in the United States for the same period.

➤ IN SOVIET RUSSIA, 3,900 scientists were graduated from the colleges with the degree of doctor in the years 1937 to 1944; about 20,000 received a master's degree, according to Joseph Agroskin, vice-chairman of the Committee on Higher Education in Moscow.

The Soviet Government has been paying particular attention to the matter of training scientists, Vice-Chairman Agroskin said, because of the pressing need for teachers of technical subjects in the colleges due to a greatly increased student body.

In 1929, there were only 26,000 engineers with diplomas in all the heavy industries of Russia. But in the last six years, about 80,000 engineers were graduated.

In pre-revolutionary Russia, Vice-Chairman Agroskin said, higher education was for the privileged few of the upper strata. In 1914, Russia had only 91 colleges with 112,000 students. The Soviet Government placed the entire system of higher education on new principles. Nationality and class distinctions were abolished. Education was free. All nationalities were permitted to teach in their own languages in colleges on the territory of their own national republics. Both universities and institutes were opened to all working people.

As a result, there are now 772 colleges with 562,000 students. Of these 132 are industrial institutes, 18 transport institutes, 87 agricultural institutes, 68 medical institutes, 115 pedagogical colleges and 29 universities.

In 1925, Vice-Chairman Agroskin reported, there were only 17,900 professors and lecturers in all Russia's colleges. Now there are 40,000.

More in U. S.

➤ IN the United States, about three times as many doctor's degrees are granted to graduate students of science as those reported granted in Soviet Russia, according to an estimate based on figures appearing in the *"Science, The Endless Frontier"* report to the President by Dr. Vannevar Bush, director of the Office of Scientific Research and Development.

In the United States, according to the Bush report, an average of 1,649 doctor's degrees in the sciences were granted annually for the prewar years 1935-1940. This would mean about 11,543 for a period comparable to the seven years reported by Vice-Chairman Agroskin from Russia during which 3,900 scientific doctorates were granted in that country. The population of Russia is, however, much larger than that of the U. S.

Although the war will probably mean a drop in the number of candidates for the doctor's degree, the peak of this deficit is not expected to be felt until several years after the war when there will be fewer college graduates ready to enter training for advanced degrees.

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MEDICINE

Small Defects in Skull Repaired by Wire Mesh

➤ THE patient who has lost a small piece of skull, either because of disease or injury, may have it replaced with a wire mesh of stainless steel if his surgeon follows a method developed by Dr. Edwin B. Boldrey of the University of California Medical School in San Francisco. Announcement of the development has been made through the University.

The wire screen, Dr. Boldrey found,

is tolerated well by the body and is superior, he believes, to small bone grafts or bone dust previously used for filling small cavities in the skull. It is suitable for defects up to one and one-half inches in diameter. It might be used following operations for removal of a small brain tumor, drainage of a brain abscess and repair of a depressed fracture of the skull.

No ill effects of any kind have followed use of the wire mesh during the past eighteen months.

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GEOLOGY

Norwegian Geologists Will Study Rock Records

➤ RETURN of science in Norway to normal conditions is signalized by arrangements now being made for a geological research expedition into a high mountain area in the central part of the country, to study records left in the rocks and soil by the waning remnants of the last great Ice Age glacier. A communication to this effect has been received by the Geological Society of America from Dr. Kaare Munster Strom, president of the Geological Society of Norway.

The expedition, which will be in the field from about June 25 to July 5, will be under Dr. Strom's leadership. The size of the party will have to be limited because of lack of shelter in the rugged mountain country, but two or three American geologists may be included.

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INVENTION

Superheated Steam For Roasting Coffee

➤ USE of superheated steam for roasting coffee instead of the conventional dry roasting is advocated in patent 2,388,298, taken out by T. J. Stephens of New York City. The coffee grains are slowly poured into one end of a slowly rotating kiln-like cylinder with a spiral web inside to keep the mass distributed and moving towards the other end. The beans are subjected to the action of superheated steam throughout their course. The inventor claims that this process makes for better flavor, more cups of coffee per pound, and greatly decreased production of harmful unsaturated organic compounds in the roasted beans. He also states that the same process can be used for roasting nuts, grains and other vegetable products.

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GENERAL SCIENCE

Scientists Deferred

Those who are under 26 and have done war research for two years may now ask to be allowed to complete study for a science or engineering degree.

➤ YOUNG scientists under 26 years of age who have done research for at least two years on war projects such as the atomic bomb, antimalarial medicines, DDT, or radar may now ask for deferment from the draft in order to complete study for degrees.

No promises are made of deferment by Selective Service. Each case will be handled individually on its merits and must be recommended by an official of the Office of Scientific Research and Development.

This is the first step taken in response to recommendations made last July in a report to the President by Dr. Vannevar Bush, director of the Office of Scientific Research and Development, in which he pointed out the critical shortage of scientists in training to carry on essential research.

The new policy is based on a letter written by Secretary of War Robert P. Patterson to Maj. Gen. Lewis B. Hershey, Director of Selective Service.

This plan, proposed by the Secretary of War, takes care of only a small part of the urgent problem of insuring that the United States have available trained scientists for postwar research needed for industry and an adequate national defense.

It makes no provision for scientists under 26 who already have their Ph.D. degrees, although these men are perhaps the most valuable both for research and for the instruction of scientists in training. It takes at least six years to train high school graduates to research effectiveness.

Nothing is done about the scientists who up until 23 months ago were still in college and who interrupted their training to do war research. The plan only applies to men who have been engaged for two years or more on war research.

No provision is made for deferment of talented 18-year-olds who up until their eighteenth birthday were taking scientific training.

Nothing is done about getting thousands of scientists in our armed forces out of uniform and back into research or scientific training, which was one of the strongest recommendations of the Bush report.

Nothing is done toward getting many scientists in the armed forces back into industry where they are needed for reconversion and development of new products, as advocated by professional organizations such as the American Chemical Society.

Only those scientists who have been engaged on war research for two years or more and who now have been enrolled in a recognized college or university to complete work for a degree in science or engineering are affected. Such individuals, under this plan, may write to George W. Bailey, Office of Scientific Research and Development, 1530 P Street, N.W., Washington, D. C., sending a statement from their employer certifying that they have spent two years or more in war research, a statement from a university or college official that he has been accepted for enrollment, and also a short personal history.

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AERONAUTICS

Carrier-Based Plane Goes 500 Miles an Hour

➤ THE BRITISH Navy's announcement of the de Havilland jet-propelled plane, the Vampire, to be used as a carrier-based fighter, indicates a new advance attained by English jet-engine manufacturers.

Looking somewhat like the twin-boomed Lockheed P-38 Lightning, it is said to have a level flight speed of over 500 miles an hour and a ceiling of nearly 50,000 feet. Powered with a single de Havilland Goblin jet engine, which also powered the original Lockheed jet fighter, the P-80 Shooting Star, the Vampire is of all-metal construction and has arresting gear for carrier landings retracting into the exhaust jet cowling.

Another very successful British jet plane, the twin-engined Gloster Meteor, was the only Allied jet fighter to see action in the war, but except for the fact that its speed is in the 500-mile-an-hour class, performance data are still restricted.

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ENGINEERING

Deaf People Will See Sounds of Speech

➤ DEAF PEOPLE will some day be able to use the telephone without an interpreter and to enjoy radio programs by seeing the sound patterns of speech, music and the like, it appears from a report by Dr. Ralph K. Potter of the Bell Telephone Laboratories. (*Science*, Nov. 9.)

Several devices for translating sound into visible, easily understood patterns for this purpose have been developed at the laboratories. So far, they are still largely in the experimental stage, but Dr. Potter suggests that in the future a deaf person will be able to carry on a telephone conversation with an apparatus about the size of a portable typewriter, the speech patterns from the party at the other end of the wire appearing on a moving drum of phosphorescent material.

First practical use of the new devices apparently will be in teaching the deaf to speak or, if they already speak, to improve their speech and eliminate unpleasant tones, blurring and the like.

Study of foreign languages, dialects, bird songs and music can be helped by the sound-to-vision translators. Industrial applications are also foreseen.

The apparatus, it is explained, makes use of the fact that speech is fully defined by three qualities: pitch, loudness and tone. Sound at any instant can be analyzed by separating it into a suitable number of pitch groups, and measuring the intensity in each group. When this separating and measuring process is continuous, and the results are exhibited on a moving screen, patterns are formed which to a trained eye reveal not only the words spoken, but even the dialect of the speaker.

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ELECTRONICS

ANRAC Aided Navigation During War, Now Released

➤ ANRAC is the newest addition to the now-it-can-be-told family of electronic devices developed during the war that are being put to peacetime uses. ANRAC is a system for turning on and off such aids to navigation as unmanned lighthouses, light buoys, foghorns and electric bell strikers by means of a set of coded radio signals sent out from a central control station. The word was coined from the initials of Aids Navigation Radio Control.

The system was installed by the U. S. Coast Guard at Pearl Harbor, Midway, sections of Alaska and certain islands in the South Pacific, as well as along both coasts of the continental United States, so that navigation aids could be turned on for the benefit of friendly vessels and shut off at other times to deny any involuntary aid to the enemy.

Peacetime uses are expected to be largely in the direction of economies in operation, permitting lights to be turned on and off according to natural lighting conditions, bells and foghorns to be stopped when there is no fog, etc. An added benefit, in the case of foghorns, is the abatement of their nuisance character; residents on foggy coasts become resentful if a foghorn keeps right on with its monotonous, disagreeable sound after the fog has cleared.

Science News Letter, November 17, 1945

CHEMISTRY

Knockout Drops Ingredient In Making DDT

➤ OLD-FASHIONED knockout drops, or chloral hydrate, figured in the original formula for making DDT, the "Mickey Finn" of the insect underworld, states F. C. Bishopp of the U. S. Department of Agriculture. The directions for making DDT, as given in the first British patent, call for mixing chloral hydrate or chloral with chlorobenzene, then adding sulfuric acid.

Science News Letter, November 17, 1945

CHEMISTRY

Iron Compound Makes Stronger Wallboard

➤ STRONGER fiberboard for building purposes can be made with shorter application of heat and pressure if the mass of wood, cane or other fiber is first sprayed with a solution of ferric sulfate or other related iron compound, Harry R. Linzell of Long Lake, Ill., states in his preamble to patent 2,388,487, which has been issued on the process. Patent rights are assigned to the United States Gypsum Company.

The chemistry of the process is still but dimly understood, Mr. Linzell continues, adding that perhaps the ferric salt has some kind of catalytic effect on the self-bonding substances generated in the heat treatment of lignocellulosic fibers. The effect, however, is to make the final product stronger, more workable and less brittle, as well as more water-resistant.

Science News Letter, November 17, 1945

IN SCIEN

PHYSICS

Atom Scientists Federate To Help Congress

➤ THE SCIENTISTS who made the atom bomb, several thousand strong, have banded together as the Federation of Atomic Scientists, welding into one national organization the separate associations that were formed at the atomic research laboratories at Los Alamos, N. M., Clinton, Tenn., Chicago and N. Y.

"Rank and file" scientists from each of these four experimental centers are being sent to Washington in relays to give information to members of Congress and government officials while atomic energy and scientific bills are being considered in Congress.

Representatives from similar groups at Cambridge, Philadelphia, and other localities joined the atomic scientists in a national conference held in Washington, Nov. 16 and 17.

A continuous monopoly of the atomic bomb by the United States is impossible, the atomic scientists have declared. No specific defenses against the disastrous effects of the atomic bomb exist, scientists further state, and no nation can feel secure until the control of atomic power is solved on a world level.

Science News Letter, November 17, 1945

AGRICULTURE

Sugar Shortage Means Less Honey, Too

➤ SWEET-TOOTH folk have another jolt coming to them; not only does the sugar shortage continue, but there will be less honey than anticipated this year.

Actually, there will be more honey this year than there was last, the U. S. Department of Agriculture states, but so much of it will have to be left to feed the bees that the human public's share of amber sweetness will be less than if there were plenty of sugar.

Ordinarily, beekeepers take most of the honey away from their bees and give them a cheaper "ersatz" food in the form of sugar syrup. But when they can't get enough sugar they find it necessary to leave more honey in the hives, to keep the workers alive until spring brings new nectar flowers.

Science News Letter, November 17, 1945

E FIELDS

BIOLOGY-GENETICS

Genes Seen at Work For First Time

➤ WHAT IS believed to be the first instance of genes, or heredity-determining units within a cell, actually being seen at work chemically influencing the course of physiology is reported by two biologists, Dr. J. F. Danielli and Dr. D. G. Catcheside, both of Cambridge University. (*Nature.*)

By means of exceedingly delicate biochemical methods, the two researchers were able to demonstrate a concentration of the enzyme phosphatase in zones or bands on a chromosome, one of the structures within the cell's nulceus credited with being the carriers of groups of genes. These zones of concentration correspond closely with the fixed positions long since assigned to particular heredity-units by geneticists. Phosphatase is an enzyme having to do with the chemical transformations of phosphorus-containing compounds, important in the life-economy of the cell.

Regarding their discovery, Drs. Danielli and Catcheside comment:

"This apparent coincidence between sites of enzyme activity and of genetic activity suggests that we have here an indication of a process whereby genes influence cellular activity, and is, we believe, the first experimental indication of the nature of such processes."

Science News Letter, November 17, 1945

GENERAL SCIENCE

Problem Is to Stop War, Not Curb Science

➤ THE WORLD'S main problem is not to curb science but to stop war, Dr. Raymond B. Fosdick, president of the Rockefeller Foundation, said in a discussion of the atomic bomb and other scientific achievements in relation to the world at large.

In the relations of one government with another, Dr. Fosdick said, law must be substituted for force and international government for anarchy. This is a job in which Dr. Fosdick feels everybody must participate, including the scientists.

"The bomb on Hiroshima suddenly woke us up to the fact that we have very little time," he said. "The hour is late and our work has scarcely begun.

"Can education and tolerance and understanding and creative intelligence run fast enough to keep us abreast with our own mounting capacity to destroy? That is the question which we shall have to answer the one way or the other in this generation. Science must help us in the answer, but the main decision lies within ourselves."

Dr. Fosdick talked over CBS network during a Philharmonic Symphony United States Rubber Company broadcast.

Science News Letter, November 17, 1945

ZOOLOGY

First Baby Gibbon Born At New York Zoo

See Front Cover

➤ THE WHITE-HANDED Gibbon baby, shown with his mother on the cover of this SCIENCE NEWS LETTER, was born on Sept. 10 at the zoo in New York. Two hours of coaxing went into the making of the picture, taken three days after the birth of the baby. Before the birth, the mother showed very little timidity and willingly approached her keeper and photographers.

Gibbons have been bred rarely before, but this is the first for the zoological park in New York. Both of the parents are a soft, café au lait, a variation occurring frequently in the wild state. (Photograph from *The Animal Kingdom.*)

Science News Letter, November 17, 1945

ZOOLOGY

Baby Bats Born with Eyes Wide Open, Report States

➤ "BLIND as a bat" certainly doesn't apply to a litter of young tropical bats whose birth was observed by Dr. T. S. Jones of the Imperial College of Tropical Agriculture at St. Augustine on the island of Trinidad. These young bats came into the world with their eyes wide open, something never hitherto reported in print for any family of bats.

Dr. Jones states, however, that one similar occurrence was reported to him in a private letter from Dr. H. B. Sherman of the University of Florida, for one litter of young of another species of bat.

These zoological rarities are discussed in a communication to the editor of the British scientific journal, *Nature.*

Science News Letter, November 17, 1945

ICHTHYOLOGY

Trout Three Feet Long Found in Peruvian Waters

➤ THE ANSWER to the angler's prayer, for "a trout so big that I, in telling of it afterwards, shall have no need to lie," seems to be in Lake Titicaca, the great freshwater sea high in the Peruvian Andes. Speckled and rainbow trout there, descended from fish eggs brought from the United States by a mining company 20 years ago, are reported to be as much as three feet long, and to give tough tussles to Indian fishermen in their frail reed canoes.

For the first time, eggs are being obtained from the Titicaca trout this year for artificial stocking of other Peruvian waters. Eventually, it is hoped, a commercial trout fishing industry may be developed in the Andean uplands, to aid in the effort to give the population a higher protein ration.

Science News Letter, November 17, 1945

ENTOMOLOGY

German Bee Researcher Continues His Work

➤ GERMANY'S leading student of bees and their ways, Prof. Karl von Frisch of Munich, well known the world over in pre-Nazi days for his researches on the "language" of bees, is still carrying on as well as he can, despite past misfortunes and present hardships, states Prof. Arthur D. Hasler of the University of Wisconsin. (*Science,* Oct. 26)

Because of his outstanding work, Prof. von Frisch had been provided with a building and special equipment by the Rockefeller Foundation. This has been badly bombed; only the basement and first story remain. Prof. von Frisch had removed the special library to his own home, thinking that the residence districts of Munich would not be bombed; nevertheless, his house and the library were destroyed. And all the time, both before and during the war, he was subjected to constant hazing by the Nazis because one of his grandmothers was a "non-Aryan."

Prof. Hasler states that this case is typical of the plight of many another non-Nazi German scientist. He adds, "It is my opinion that those who have acquaintances in Germany would do science, and, may I venture, world peace a great service by sending them a word of encouragement or perhaps some reprints or warm clothing."

Science News Letter, November 17, 1945

GENERAL SCIENCE

For These Things, Thanks

For the end of killing, for atomic power, albumin, globulins, streptomycin, DDT, ANTU, and for the opportunity for confidence and understanding.

By WATSON DAVIS

➤FOR THE END of killing, thanks. For the lifting of the gnawing fear of sudden death for ones loved, thanks. Stresses of world-wide war fade into conflicts of peace. Thanks, too, for this.

May 8 . . . Aug. 14.

Out of the dead and wounded past comes future hope. Costly offense to fend our ways brings ways to bright new worlds; weapons of war wrought into shares of well-being.

Pearl Harbor . . . Nagasaki.

War is blood-letting. Millions at home gave their Red Cross blood that soldiers might be unshocked. Plasma, clear life-fluid, powdered and then reconstituted on the battlefields, countered the clawings of high explosive shells.

By-products of plasma—by-products of war—came out of the laboratory to minister to ailing people. A blood fraction prevents measles, another makes a plastic that, because it is part of the body, covers surgeon's woundings and returns to the body. A substance to make blood-typing quicker and surer. Future medical riches from the good red blood. Some use for the red blood cells, and protectors against other ills.

Albumin . . . fibrin . . . globulins.

Propellers that fan give way to jets that spurt. Puffs and streams of exploding gases thrust new aircraft at speeds that rival the swift travel of sound. Seven hundred miles an hour plus brings tussle of flight with reluctant air. Compressibility puts up a barrier that research will thrust aside by sleeker, smoother, aerodynamically cleverer wings. New foils will foil the momentary pause in aeronautics ever faster, faster. Despair-born V-1, V-2, sudden death in each explosion, to those unborn are mere models for some useful rocket, bearing mail, probing weather aloft, or whisking human cargo through the stratosphere.

P-80 . . . P?

Bigger, longer armed, higher reaching, more heavily burdened B-29s and all their bomber ilk are prototypes of peaceful ships to drop new commerce and mutual exchanges of trade and culture upon our neighbors half around the globe. Air paths war-blazoned around the earth, with smooth, hard landing ribbons in arctic wastes and tropic jungles, are breathing and refresher spots in the airlanes to a united world. We have talked of one world; these are the ties to compress our sphere to three-score hours.

USAAF . . . ATC.

Gold is yellow. So is the lowly mold that gives up the penicillin drug that outcures even the marvelous sulfa family of chemicals. More precious than gold ever was or ever will be is this mold chemical, mass-produced in giant factories with priorities as high as explosives, or bombers, or atom bombs—almost. Good from the evil of war, this antibiotic of great value, worth to the future some of the suffering of the recent past—almost.

Syphilis treated in a mere nine days. Gonorrhea conquered and non-infective in one single day. Deadly pneumonias laid low in hours. Were these not modern medicine they would be miracles. Thousands willing to let their blood be tested now that cures are speedy, sure. In the hopeful glassware of experimental laboratories other growths of other fungi give hints of conquests to come. And new chemicals with promise for attacking other diseases.

Streptomycin . . . Promin.

Greatest flying foe in the early stages of island hopping toward Tokyo and the yellow heart of Japan was not bomber Mitsubishi or pursuit Zero. Rather it was malarial plasmodium carried by Anopheles, mosquitoes to you. Quinine was preclusively captured by the Japanese overrunning of the East Indies. Out of the other Axis enemy, Germany, came a chemical substitute, atabrin, as good or better than the time-honored quinine. U. S. perfected and produced, this chemical, becoming as G. I. as K rations, outfought malaria. Who cares it turns U. S. marine and soldier a yellow hue? Who could confuse G. I. with Jap? Still a world problem, malaria comes under the control of war necessity.

Guadalcanal . . . Bougainville.

Other front attacks on the insect foe on Pacific isles, in teeming jungles, conquered cities and home cottages. Dichloro-diphenyl trichloroethane, DDT for short, is death to disease and insects. Sprayed from the air, it has captured territory held by insects that our armed forces could otherwise occupy only at cost of disease losses. DDT stands for "deals death to typhus." Sweeter than the most exotic perfumed talcum is DDT powder to an army fighting typhus-carrying lice or to civilians in a city gripped by rising typhus epidemic. New poison warfare against rodents is ANTU and not kind to rats is 1080, both new chemical compounds to keep in check the animal foe "underground" in all our cities. No hope of getting the rats to join the UNO.

DDT, Naples . . . ANTU, Baltimore

It has been a metallic war with steel by the millions of tons, more aluminum than ever dreamed of before, lighter magnesium snatched from the sea, and tin and lead and copper closely hoarded to serve the machines of Mars. New alloys of steel, using metals we have much of instead of those we have not so much of, are here to serve the huge demands of reconversion and depleted shelves of commerce.

Electricity coats the precious tin upon tin cans to be; a saving method that will work in peace as well as war to keep our tin can civilization going. Substitutes, plastics and the like, lend metals a helping hand, and competition will tell whether the assistance will turn to rivalry. Machines for cutting, shaving, forming metals, produced in larger volume than the world has ever known, give us the best productive capacity for a machine-operated, expanding industry for creative peace, replacing destructive war.

Steel 1808 . . . Al-Mg 4303.

We were bouncing along merrily on rubber when war punctured the flow of our plentiful stream of latex from the East Indies. Great chemical works making synthetic rubbers of several different kinds have mushroomed in our tem-

Helping you sleep better

It may seem a bit unusual... ...that an electrical manufacturing company serving so many needs of a wide-awake, workaday world should be interested in helping you *sleep*. But with General Electric it's a fact.

Air conditioning units that make every night in the year "a good night to sleep"—automatic home heating systems—silent fans—quieter street cars and buses—heating pads—and feather-weight electric blankets for zero nights...

These are only a few of the many aids to better sleep developed by General Electric engineers and research scientist. *General Electric Company, Schenectady, N. Y.*

She likes to sleep "snug as a bug in a rug" on zero nights. Her husband is a ruggeder, warmer-blooded sort. But a feather-weight G-E automatic blanket for each is perfect—for these blankets can be adjusted to keep beds at any degree of warmth evenly all night long, despite temperature changes. G-E automatic blankets are made according to the same principle that keeps high-altitude flying suits "electrically warm" even at 60° F. below zero.

Taking the clatter out of the trolleys. Lucky indeed are folks sleeping along the routes of modern street cars and G-E powered electric trolley coaches. For these hush-hush vehicles barely whisper when they pass—even at full speed. The electric trolley coach is quieter by actual noise-meter test.

Taking the buzz out of fans means taking the buzz out of the blades. For a lot of fan noise, like airplane noise, comes largely from the whirring blades. The result of G. E.'s designing and testing innumerable fan blades is the unique "Vortalex" type. You can hardly hear it even if you listen carefully!

Taking street light out of bedrooms. This new street light is the greatest advance in residential street lighting in 40 years. Designed by G-E lighting engineers, it projects light away from the houses and to the street. It provides more light on the street where it belongs and less on your house front.

More Goods for More People at Less Cost

GENERAL ELECTRIC

952-644-211

Do You Know?

Stories that *swordfish* sometimes attack whales are unconfirmed.

Oranges in 1944 accounted for 73% of the total world citrus crop.

Unbreakable *mirrors* are made of transparent plastic coated with silver.

Botanical drugs are being grown experimentally on a Pennsylvania farm.

Colors in fishes are in general produced by oil sacs beneath the skin, or in some cases beneath the scales.

Pitchy spots and knots on new *lumber*, before painting, should be covered with shellac or aluminum paint.

The U. S. Maritime Commission is selling surplus boat *anchors*—by the pound.

A machine that digs, picks and sacks *potatoes* in one operation has been constructed and is in successful use.

Potted plants usually grow better if the pot is sunk deeply in sand or peat moss that is kept moistened; the moisture enters the pot through the porous clay wall.

American *scientists* are now in Germany studying such wood products as cellulose, wood sugar, ethyl alcohol, feeding yeast and others that supplied the Nazi war machine during the war.

perate industrial climate to replace rubber trees, native to the Americas, but cultivated so laboriously in the tropical east. Our guns, our ducks, our jeeps, our airplanes, our auto pools, our buses, our thousand and one rubber-hungry mechanisms were kept shod with precious stocks of natural rubber and increasing supplies of man-made rubber. Self-sufficient, thanks to war, our rubber age can expand and run smoothly, using each complexity of elastic stuff to its best abilities.

GR-S . . . Neoprene.

Old plastics were put to new uses and new plastics were put to old uses. The silicone family took its utilitarian bow, showing how a mere breath of an airy compound could waterproof paper, for instance, and how this combination of very plentiful elements could moisture-proof spark plugs and do other fighting jobs. The vinyl family coated fabrics and made sheetings that replaced textiles. Nylon left the legs of ladies to parachute aviators to safety. Milk, soybeans, and other protein sources became raw materials for wool-like textiles. The postwar era will be a plastics age.

Bakelite . . . nylon.

Ill-fed, as FDR observed about a third of our depression USA, characterizes an unhappy part of humanity in war and postwar. Yet we know more about eating well and our farms can produce more with less effort. The seven kinds of foods that all should eat, and the ability to live healthily on rationed food and even like it. Dehydrated food saved the costly transport of water overseas in precious cargo space, and front-line fighters lived well out of clever combinations in cans. Quick freezing brought Florida in April to the Pacific in December. For kitchens of the future these war devices hold much promise, decreasing the drudgery of feeding the family and increasing the pleasure of eating. For ravaged peoples, potential defense against starvation until their earth is green again.

Vitamins . . . Amino Acids

In blackest night, foggiest sea, cloudiest sky and at highest height, an airplane can be spotted with electronic eyes called radar. Whole landscapes can be "seen" where there is no light. Big and little guns can be aimed effectively at ships or shore or aircraft that the gunner never sees. On bombing raid or transport flight airplanes can locate themselves accurately in a few seconds, using a radio navigation device called loran. New radio, television, frequency modulation, walkie talkie, and a dozen others. These new electronic devices and others

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By Oscar L. Levin, M.D. and Howard T. Behrman, M.D.

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like them, war-born, will be used in peace and bring forth new applications for factory, transport, community and home.

UHF . . . FM.

One hundred plus octane gasolines for fighting planes mean better gasolines for new automobiles we shall drive a few years hence. Ironically, kerosene is the fuel of jet-propelled craft. That new car will benefit from the machines for war, and farm machinery and tractors will be improved by the test of mechanized warfare. And not just jeeps pulling plows and herding cattle. Intensive engineering and production experience in all industry should roll the peacetime products into use with better value for the dollar and more money in the pay check. From bomber-factories—that were—will come the insides of new homes, bath, furnace, kitchen units. Or personal planes that become the trans-country air car of the executive. Or complete little houses to dot landscapes unfilled. Or peacetime "ducks" and "weasels" to blend the country cottage with the motor boat.

Faster . . . better . . . cheaper.

Atoms rule the world. When plutonium cyclically fissioned over Hiroshima, either extinctive future war began or a very energetic future world of goodness was made possible. Controlling the human beast is now more important than man's mastery over inanimate nature. What goes on in human minds and emotions precasts the future more irrevocably than any conversion of mass into energy. The human equation can negate or use the Einstein equation. Human behavior must learn to use atomic behavior. Statesmen need scientists who understand human thoughts and emotions to help them control the people who can keep the atoms under control. We face the world's grandest opportunity or largest disaster.

U . . . Pu.

For the opportunity of remaking a brave, new world, thanks. For powers large enough to do it, thanks. For confidence and understanding among all who inhabit the earth, we hope.

Science News Letter, November 17, 1945

ENGINEERING

Simplest Engine in World Helps Launch Gliders

➤ A MODEL of an engine, claimed to be the simplest engine in the world today, was demonstrated recently at the Polytechnic Institute of Brooklyn by Zygmunt Fonberg, the Polish rocket expert and inventor of the first bazooka in Poland prior to the war. It is a ram jet motor of new and unusual design.

This new engine was designed to help launch gliders into the air. It consists of a cylindrical tube, which appears to be just an empty pipe, mounted on a restraining structure which has a free moving arm to permit the engine to swing in a circle around it when in operation.

The lining of the tube expands from a smaller diameter in the front end to a larger diameter at the other. The space on either side of the lining and the outer wall contains the gas which runs into a nozzle at the forward end of the cylinder. Air mixes with the gas coming through the small holes of the nozzle during combustion, thus providing the force of propulsion.

Science News Letter, November 17, 1945

On Antibody Formation

It is well known that severely underfed patients with nutritional edema are excessively susceptible to infections, that infections superimposed on wasting diseases or marasmic states show a rapid, frequently fatal course. In the light of recent findings, both of these facts—heretofore but poorly understood—may well be on the way to conclusive explanation.*

Evidence is rapidly accumulating that antibodies, our chief weapon against infection, are modified proteins of the globulin type. During active immunization, antibody formation presents a continuous process, requiring its share of amino acids.

Experimentally it has been demonstrated that induced hypoproteinemia reduces the capacity to produce agglutinins, precipitins, hemolysins. Adequate protein intake thus gains increasing significance as an essential factor in the resistance to infectious disease.

Among the protein foods of man meat ranks high, not only because of the percentage of proteins contained, but principally because its proteins are of high quality, able to satisfy every protein need.

**Cannon, P. J.: J. Am. Diet. Assn. 20:77 (1944)*

The Seal of Acceptance denotes that the nutritional statements made in this advertisement are acceptable to the Council on Foods and Nutrition of the American Medical Association.

AMERICAN MEAT INSTITUTE

MAIN OFFICE, CHICAGO . . . MEMBERS THROUGHOUT THE UNITED STATES

ORNITHOLOGY

NATURE RAMBLINGS

by Frank Thone

Much-Traveled Bird

➤ AS THANKSGIVING Day approaches, the turkey again struts to the fore in public attention. No magazine or Sunday newspaper feature section is complete without one, and flocks of the big birds, both living and stiff in death, appear in the markets.

We are all familiar with the fact that the turkey's name is a misnomer, that the native home of the bird is in the New World and not the Old; and many are the conjectures as to how he picked up the name of an Asian empire as his own.

Paradoxical though it may seem, it appears probable that this highly American fowl did come to the United States from Turkey—or what was Turkey at the time our colonizing ancestors settled on the Atlantic seaboard. For the turkey of our farmyards and Thanksgiving-Day platters is not descended from the wild turkey our ancestors may have hunted in the Eastern woodlands, but from already tamed stock which they brought with them from Europe. And this Europeanized turkey was the descendant of one or more kinds of turkey which the Aztecs, Mayas and other highly civilized Indians of Middle America possessed as domestic poultry when the Spaniards first made contact with them.

Carried home to Spain, the turkey appears to have passed into the hands of that country's Mohammedan neighbors on the opposite shores of the Mediterranean, and thence to the center of Mohammedan power and culture, the Turkish capital of Constantinople. Thence the multiplying birds diffused, like several other American products such as corn, tobacco and pumpkins, over the lower Danube valley, then part of the Turkish empire.

In this roundabout way, new things from New Spain found their way eventually into the hands of northern Europeans. Maize or Indian corn was long known in western Europe as Turkish wheat, and the first published European name of the common pumpkin was Turkish cucumber. Curiously enough, however, the turkey was not called by that name on his first appearance in print, in the sixteenth century, but was named "a cok of Inde." When turkeys first appeared in Europe they were somehow confused with what we now know as Guinea fowl, which came from Africa and which had already picked up the name of Turkey fowl. When the zoological distinction between the two was finally made clear, the name turkey stuck to the wrong bird. And there it has stayed ever since.

Science News Letter, November 17, 1945

WILDLIFE

Food Supply of Deer Increased by Ice Storm

➤ SEVERE ice storms may be a blessing to deer and other wildlife if they last but a short time and are not accompanied by low temperatures. By breaking boughs and uprooting trees, thus bringing more green leaves within the reach of the deer, such a storm can actually improve their present and future food supply.

Some 1,120 pounds of cedar browse per acre were provided in some regions during the severe ice storm in central Maine in November, 1943, which bowed down or snapped off many forest trees, James D. Curtis of the department of forestry, University of Maine, reports in the *Journal of Wildlife Management.* From animals found feeding on these trees and from tracks and other signs that the region had been visited, it was obvious that deer and rabbits soon discovered this food.

Science News Letter, November 17, 1945

The BURGESS vibro-tool Reg. U. S. Pat. Off. for the LABORATORY

There are a multitude of jobs in almost every laboratory and research institution which the Vibro-Tool can perform so as to save time, money–and increase efficiency. The Vibro-Tool instantly marks names or identifying symbols on metals of all kinds (even hard steel), glass, wood, plastics and stone. Almost as easy as writing with a pencil. The Vibro-Tool is portable . . . easily moved from place to place . . . weighs slightly over one pound. Not tiring to the hand. No special experience needed to use it proficiently.

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Books of the Week

CRIMINOLOGY AND PENOLOGY—John Lewis Gillin—*Appleton-Century,* 615 p., $4.50. Third ed., revised and enlarged.

THE ETERNAL ONES OF THE DREAM: A Psychoanalytic Interpretation of Australian Myth and Ritual—Géza Róheim—*Int. Univs. Press,* 270 p., illus., $4.50. The most recent development in psychoanalytic theory applied to the latest anthropological data.

FLOWING GOLD: The Romance of Oil—John J. Floherty—*Lippincott,* 256 p., illus., $2.50.

GENERAL BIOLOGY AND PHILOSOPHY OF ORGANISM—Ralph Stayner Lillie—*Univ. of Chicago Press,* 215 p., $3.

INDIAN HARVEST: Wild Food Plants of America—Jannette May Lucas—*Lippincott,* 118 p., illus., $2.

INTER-AMERICAN CONFERENCE OF PROFESSORS OF HYGIENE—*Pan American Sanitary Bureau,* 151 p., paper, illus., free.

IN THE DOCTOR'S OFFICE: The Art of the Medical Assistant—Esther Jane Parsons—*Lippincott,* 293 p., illus., $2. Based on a series of lectures given by the author to medical assistants in training.

ORGANIZATION OF TECHNICAL RESEARCH IN INDUSTRY: A Monograph—F. W. Blair and others—*Industrial Research Inst.,* 15 p., paper, free. Prepared by a committee on research organization.

PATHOLOGY OF TROPICAL DISEASES: An Atlas—J. E. Ash and Sophie Spitz—*Saunders,* 350 p., illus., $8.

PRINCIPLES OF RADIO FOR OPERATORS—Ralph Atherton—*Macmillan,* 344 p., illus., $3.75. A practical manual written for those with no previous training.

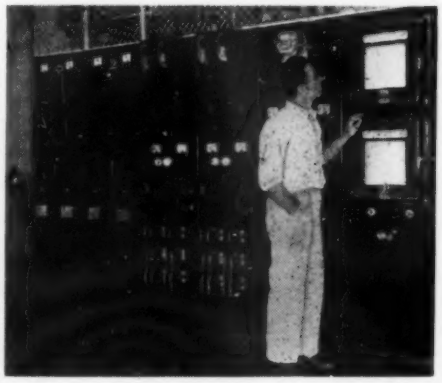
ROSENBERG'S NAZI MYTH—Albert R. Chandler—*Cornell Univ. Press,* 146 p., $1.75. A study and criticism of the main features of the Rosenberg doctrine.

THE SPICE HANDBOOK: Spices, Aromatic Seeds and Herbs—J. W. Parry—*Chemical Pub. Co.,* 254 p., illus., $6.50. A guide for manufacturers, importers and salesmen desiring greater knowledge of spices and important aspects of the spice trade.

TABLES OF ASSOCIATED LEGENDRE FUNCTIONS—Lyman J. Briggs, Arnold N. Lowan and others—*Columbia Univ. Press,* 303 p., $5. Prepared by the Mathematical Tables Project under the sponsorship of the National Bureau of Standards.

WARTIME TECHNOLOGICAL DEVELOPMENTS: Supplement for 1944—*Supt. of Doc.,* 197 p., paper, 50 cents. A study made for the Subcommittee on War Mobilization of the Committee on Military Affairs, U. S. Senate. Many of the 839 items of wartime technical advance, some of which have great potentialities for peace time production, appeared in the SCIENCE NEWS LETTER during 1944.

Science News Letter, November 17, 1945



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Synthetic rubber cannot be reclaimed by the same methods used to reprocess natural rubber and chemists still have before them the problem of finding a method for synthetic rubber tire reclamation.

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❁ *LANGUAGE master, a record player machine used in teaching languages, has a device that permits accurately spotting and repeating intricate phrases and sentences again and again until mastered. It can be used with crystal headphones without amplifier when desired.*

Science News Letter, November 17, 1945

❁ *PRESSUREGRAPH is an electronic instrument that indicates, on a cathode-ray oscillograph, pressure-time curves of an internal combustion engine, pump, airline, or of any other enclosed pressure system. It is simple in operation, only one control being required.*

Science News Letter, November 17, 1945

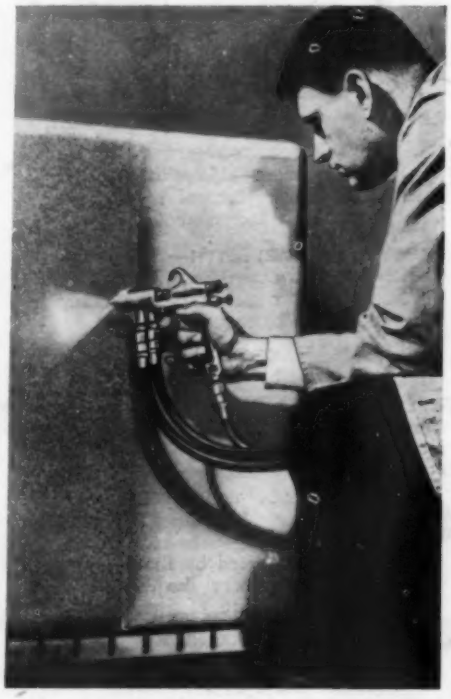
❁ *AUTOMATIC dishwasher, for the home, sprays the dishes, glasses and silverware placed in it, washes them, rinses them twice, cleans and drains itself and then shuts itself off. Electrically operated, it does the complete job in about 12 minutes.*

Science News Letter, November 17, 1945

❁ *VACUUM cleaner, a lightweight household model, has an elongated plastic receptacle for the dirt instead of the ordinary dust bag. Although the handle of the cleaner passes through the center of the plastic dust holder, the holder is easily removed for emptying.*

Science News Letter, November 17, 1945

❁ *TWO-COLOR spray gun gives, in one operation, two-coat spatter finishes simulating iridescent metal. Two colors are sprayed at the same time through a single nozzle. As shown in the picture, it resembles the ordinary spray gun but has two fluid inlets near its head.*



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❁ *INTERPHONE system for tanks on the battlefield permitted communication between tank commanders. The men plugged cables from telephone headpieces into interior switchboxes connected with exterior boxes on which were signal lights and terminal binding posts for field connections.*

Science News Letter, November 17, 1945

❁ *STAINLESS steel films of microscopic thickness on the lenses of sun glasses enable flyers to look directly at the sun by turning their eyes upward. Through the center the glasses are comparable with ordinary sun glasses, transmitting enough light for normal, daytime vision. The thickness of the film increases toward the rim.*

Science News Letter, November 17, 1945

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 285.

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Question Box

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